REMARKS/ARGUMENTS

The Office Action mailed October 2, 2003 has been reviewed and carefully considered. Claims 1, 3, 6, 7, 8, 9, and 10 have been amended. Claims 1-10 are pending in this application, with claim 1 being the only independent claim. Reconsideration of the above-identified application, as herein amended and in view of the following remarks, is respectfully requested.

The detailed description of the specification has been amended to provide a description of reference characters 3 and 12, which were not mentioned in the original specification, but appear in Fig. 1. The added description merely describes what is shown in the drawing and therefore does not add new subject matter.

In the Office Action mailed October 2, 2003, claims 1-10 stand rejected under 35 U.S.C. §103 as unpatentable over U.S. Patent No. 5,347,068 (Rabe) in view of U.S. Patent No. 2003/0037714 (Tetsumoto).

Claims 1-10 stand rejected under 35 U.S.C. §103 as unpatentable over U.S. 5,866,091 (Stevenson).

Before discussing the cited prior art and the Examiner's rejections of the claims in view of that art, a brief summary of the present invention is appropriate. The present invention relates to a process for the utilization of halogen-containing remainders and waste materials. A reactant including halogen-containing remainders and waste material are supplied to an entrained flow gasifier where a reaction to form a crude gas is performed (see page 7, lines 3-6 of the specification). The heat value of the reactant is greater than 6MJ/kg (page 3, lines 9-13, and page 7, lines 8-11). Combustible materials may be added to the reactant to ensure the required heat value (page 3, lines 13-16).

As the crude gas formed by the reaction leaves the gasifier, it is cooled in a quenching cooler by an injection of fresh water 19 and water 13 that is already enriched with soluble gas components (page 7, lines 11-13). The hot crude gas having a temperature of at least 1100°C is cooled by the steps of partial cooling through contact with a limited amount of water which completely evaporates and passes into crude gas, indirect cooling in a heat exchanger by steam or hot water, and cooling to an ambient temperature while soluble gas components are absorbed in water 13 in an absorber 4 (page 4, lines 8-14 and page 7, lines 13-15).

To remove remaining halogen-hydrogen traces, the crude gas is introduced to a fine cleaning stage 5 after exiting the absorber 4 (page 3, lines 21-23 and page 7, lines 15-17. The crude gas is then cooled in a cooler 6 and is usable as a pure gas 8 (page 7, lines 18-20).

Independent claim 1 recites that a reactant having a heat value of greater than 6 MJ/kg is reacted with a gasification agent in a flow gasifier for forming a crude gas, that the crude gas contacts a predetermined amount of water for cooling, wherein the crude gas is saturated by evaporation of part of the water, and that the at least one soluble component of the crude gas is soluble in water using a remainder of the water that is not evaporated after the crude gas has contacted the water. Independent claim 1 has been amended to specifically recite that the gasifier is a flow gasifier and to recite that the step of absorbing is performed after said step of contacting. Independent claim 1 and the dependent claims are also amended to correct matters related to form such as adding hyphens and deleting unnecessary punctuation.

Rabe discloses a two stage gasification in which waste material and combustible material are first gasified in a fixed-bed gasifier 1 (col. 5, lines 44-51). The crude gas formed in the fixed bed gasifier is introduced to a post-gasifier 9 in which the crude gas is mixed with waste oil 11 and oxygen 12 (col. 6, lines 5-33). Conversion of the hydrocarbons in the crude gas and waste oil is

performed by a flame in the post gasifier (col. 6, lines 46-51). A cleaned disposal flow 15 is subjected to a quenching liquid flow 14 for cooling (col. 6, lines 64-66) and is then subjected to conventional gas cleaning (col. 7, lines 1-3).

Since Rabe discloses that the reactants are introduced into a fixed-bed gasifier, Rabe fails to teach or suggest the step of "reacting the reactant and a gasification agent containing free oxygen into a crude gas in a flow gasifier". If the post gasifier 9 is considered to be the claimed flow gasifier, Rabe still fails to teach or suggest the claim language because Rabe requires that the reactant first be formed into a crude gas in a fixed-bed gasifier.

Furthermore, Rabe also fails to teach the steps of "contacting the crude gas with a predetermined quantity of water for cooling and saturating the crude gas by evaporation of a part of the predetermined quantity of water with steam" and "absorbing, after said step of contacting, at least one of solid components, liquid components and gaseous components of the crude gas that are soluble in water using a remainder of the predetermined quantity of water that has not been evaporated", as recited in independent claim 1. Rather, Rabe discloses only the step of quenching the gas as it leaves the post gasifier 9. After that, Rabe discloses that the gas is subjected to convention gas cleaning (col. 7, lines 1-3 of Rabe). The Examiner states that some of the components of the gas leaving the post-gasifier would be absorbed by the water during quenching. Even if that were true, this absorption would occur during the step of quenching. The step of quenching disclosed by Rabe corresponds to the step of contacting the crude gas with a predetermined quantity of water", as recited in independent claim 1. Since Rabe only discloses cleaning the gas using convention gas cleaning after the step of quenching, Rabe fails to teach or suggest the step of absorbing, after the step of contacting, a component of the crude gas using a

remainder of water that has not been evaporated from the step of contacting, as recited in independent claim 1.

Tetsumoto fails to teach or suggest what Rabe lacks. Tetsumoto discloses a method of treating combustible waste in a rotary hearth. The rotary hearth furnace is not applicable to entrained flow gasifiers. Furthermore, Tetsumoto fails to disclose a cooling process as recited in independent claim 1. Accordingly, it is respectfully submitted that independent claim 1 is allowable over Rabe in view of Tetsumoto.

Stevenson discloses a method for minimizing hydrogen halide corrosion in a partial oxidation process. According to Stevenson, a halogen containing hydro-carbonaceous feedstock 2 and oxygen are fed to a quench gasifier 10 (see col. 5, lines 62-66). A syngas and slag are produced which are quenched with a neutralizing agent, such as ammonia, to neutralize the maximum expected halide content of stream 2 (col. 6, lines 1-5). Nontoxic slag 6 exits the quench zone to disposal (col. 6, lines 5-7). Accordingly, Stevenson relates to neutralizing the halide content of the stream. The halogen-free gas must then pass through scrubbers 16 to further remove particles and ammonia (col. 6, lines 8-22). There is no teaching or suggestion for the step of "absorbing, after said step of contacting, at least one of solid components, liquid components and gaseous components of the crude gas that are soluble in water using a remainder of the predetermined quantity of water that has not been evaporated", as recited in independent claim 1. Accordingly, it is respectfully submitted that independent claim 1 is allowable over Stevenson.

Dependent claims 2-10, being dependent on independent claim 1, are deemed allowable for the same reasons expressed above with respect to independent claim 1.

The application is now deemed to be in condition for allowance and notice to that effect is solicited.

Respectfully submitted,

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